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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/728,766

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Deb K. Chatterjee

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EXAMINER

MONSHIPOURI, MARYAM

ART UNIT

PAPER NUMBER

1653

DATE MAILED: 04/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/728,766	Applicant(s) CHATTERJEE ET AL.	
	Examiner Maryam Monshipouri	Art Unit 1653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 69-116 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 96-110 is/are allowed.
- 6) ☒ Claim(s) 1, 69-95, 111-116 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

Art Unit: 1653

Claims 2-68 have been canceled. Claim 1 and newly presented claims 69-116 are still at issue and are present for examination.

Applicants' arguments filed on 1/31/2006 have been fully considered and are deemed to be persuasive to overcome some of the rejections previously applied. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 69-95 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The terms "first polypeptide" and "inclusion partner protein" are directed to products that have not been adequately described in the specification.

Claim 1 (and its dependent claims 69-95) as recited is directed to method of making a fusion construct in the form of inclusion bodies in bacteria utilizing a **genus** of nucleic acid sequences encoding a genus of "first polypeptide(s) " wherein said first polypeptides may be obtained from any sources and species and can be of any length. The specification fails to provide any information about what structural limitations said

Art Unit: 1653

genus of nucleic acids must have such that they could be prepared as inclusion bodies in a bacterial host according to claimed method. Applicant is well aware that many mammalian or other genes and many genes of very long length or very short length cannot be utilized in the claimed method. Therefore some additional information about characteristic of genes and DNA sequences that may successfully be utilized in the claimed method is required that is currently lacking in the disclosure. In page 15 of the specification applicant provides merely **three species** of polypeptides and their encoding sequences, namely gene 32 protein fragment of bacteriophage T4, *KpnI* methylase and Dead box protein in support of the enormous genus of DNA sequences to be utilized in the claimed methods. Applicant is well ware that 3 species is totally inadequate to represent the genus of nucleic acids claimed in the instant invention.

In overcoming the rejection directed to the term "inclusion partner protein" (see claims 1, 69-71, 74, 86-94) applicant argues the following: **(1)** applicant has provided several species of "inclusion partner protein" encoding genes (see page 18) and discloses methods of determining whether a gene construct with a putative inclusion partner induces the production of inclusion bodies in a cell.

(2) The written description in contrast to Office statement, does not require to put one of average skill in the art in possession of the invention, rather, possession of the invention relates to the conception of the inventor. According to applicant, the Office action has not presented a case for why the skilled artisan, on careful reading of the specification would not believe that the inventor was in possession of the claimed method.

These arguments were fully considered but were found **unpersuasive** because of the following reasons: in response to applicant **first** and **second** arguments the examiner agrees that applicant has named some additional species of possible inclusion partners in the specification. However, methods of inducing such genes except for thioredoxin encoding gene and its derivatives, in contrast to applicant's view, have not been adequately described. Applicant is well informed that an "inclusion partner encoding gene " to be expressed together with the desired gene as inclusion bodies in bacterial host cells needs to be modified truncated and reorganized but the disclosure does not provide any such information. Applicant himself/herself admits in the specification that he/she **unexpectedly** found out that the expression products of its polypeptides with thioredoxin or its derivatives resulted in formation of inclusion bodies in the host cells. With respect to all other "inclusion partner protein encoding genes" all applicant provides is a general and non-specific reference in prior art wherein such products are disclosed.

In other words, by reading the instant disclosure if the skilled artisan intended for example, to conduct a method of preparing an insulin encoding gene in a inclusion body by fusing it to let us say, *Salmonella typhimurium* MalK protein encoding gene or porcine interferon-gamma gene he /she does not know the answer to any of these questions: what are the critical region(s) of said "inclusion partner protein" encoding gene and what length thereof should be utilized such that said product, after fusion, could still promote inclusion body formation in bacteria. What exact salt and temperature and incubation conditions are necessary to promote inclusion body

Art Unit: 1653

formation in bacteria etc. What are the multimers of said partner encoding gene and what are the optimal length and conditions for fusing said multimer to the desired gene. Therefore, the examiner maintains that based on the amount of the information provided the invention as broadly claimed lacks adequate written description and applicant has not fully mastered the conception of the invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 86-90 and 111-116 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The phrase "wherein the method is repeated for a second polypeptide" in claim 111 (and its dependent claims 112-116) is unclear. It is unclear which is the first polypeptide, whether second polypeptide is attached or fused to first polypeptide etc. Appropriate clarification is required. Likewise, in claim 87-88 and 90 the phrase "wherein the method is repeated for the second polypeptide" is unclear. In claim 89-90 the phrase "wherein the method is repeated for the third polypeptide" is unclear.

Claim 69-70 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear as to how many polypeptides the term "plurality" is referring to. It is also unclear whether said polypeptides must be attached to a binding dye or not.

Art Unit: 1653

Claims 94-95 and 115-116 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear how many " monomers" are embraced in the term "multimer".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1, 71-73, 75, 86, 91- 93) are rejected under 35 U.S.C. 102(a) as being anticipated by Asermely et al. (J. Chromatography, 695, 1997, 67-75). It is noted that applicant claims priority to a provisional application filed 1/8/97). However, applicant cannot rely on this priority data because the examiner could not find explicit support for the method of claim 1 (and its dependent claims 72-73, 75, 86, 91-93). Therefore the earliest priority date that applicant is entitled to is 1/8/1998). In view of said date, Asermely teaches about a method of making a recombinant fusion protein in E. coli host comprised of synaptobrevin-thioredoxin incubated with commasie blue for running an SDS page for size analysis (see figure 6) prior to this invention anticipating claims 1 and 86. Said thioredoxin is from a bacterial source anticipating claims 71-73 which can be considered to be a modified version of thioredoxin, anticipating claims 75. In page 72 Asermely teaches that the yield of soluble fusion protein was very low and in figure 6 it shows several bands of fusion proteins with at least 2-3 times higher molecular weight

Art Unit: 1653

than soluble TSB-51 fusion protein of approximately 17 KD which implies than due to presence of thioredoxin DNA, most of recombinant TSB-1 fusion protein was prepared in aggregated form in inclusion bodies due to inherent property of DNA encoding thioredoxin, anticipating claims 91-92. In page 68 Asermely teaches that there is a cleavage site between synaptobrevin and thioredoxin (Q76-F77) anticipating claim 93.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 87-88 and 111-112 are rejected on the ground of non statutory obviousness-type double patenting as being unpatentable over claims 7-12 of U.S. Patent No. 6,703,484. Although the conflicting claims are not identical, they are not patentably distinct from each other because the scope of instant claims overlaps with the scope of patent claims.

Art Unit: 1653

Allowable Subject Matter

Claims 96-110 are allowed. This is because the claimed methods are free of prior art. Further the prior art does not teach or suggest preparing such specifically claimed method. Hence said method is also non-obvious.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maryam Monshipouri whose telephone number is (571) 272-0932. The examiner can normally be reached on 7:00 a.m to 4:30 p.m. except for alternate Mondays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Weber Jon P. can be reached on (571) 272-0925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

~~re Monshipouri~~
Maryam Monshipouri Ph.D.
Primary Examiner
